

Patent claims

1. A device for placing instruments or implants in
5 body organs with the aid of a targeting appliance
(40) interacting with a computer tomograph, the
targeting appliance (40) being arranged in the
form of a navigation unit (30) on a support (2)
which is displaceable on a substructure, in the
10 manner of a slide, and which can be fixed in
relation to a substructure mounted on a CT table,
the navigation unit (30) comprising a retaining
element for holding and guiding an instrument
(42), an implant or another object, the navigation
15 unit (30) being able to be displaced and/or
rotated in one or more planes in relation to the
support (2, 2') and the retaining element (7)
being able to be displaced and/or rotated in one
or more planes in relation to the navigation unit
20 (30), and the navigation unit and the retaining
element being able to be mutually fixed in the
adopted position, characterized in that a computer
(R) integrated in the CT appliance is able to
store at least one position of the CT table, which
25 position corresponds to a work plane determined by
test sections, in that the object (42) to be
inserted can be brought into said work plane with
the aid of the targeting appliance (40) and can be
further moved only in this plane, and in that the
30 CT table is displaceable such that it can be moved
out from the gantry of the computer tomograph and
repeatedly returned according to the stored
position of the work plane in such a way that the
intervention can be navigated on the basis of
35 updatable CT images.

2. The device as claimed in claim 1, characterized in
that the support (2, 2') is equipped with support
columns (2, 2') displaceable in the manner of a

slide on the base plate (1) and, if appropriate, with an additional crossbeam (3, 3'), and the navigation unit (30) is arranged displaceably and, if appropriate, rotatably on the support columns 5 (2, 2') and/or on the crossbeam (3, 3') but in such a way that it can be fixed.

3. The device as claimed in claim 1, characterized in that the navigation unit (30) comprises a cylinder 10 (6) which is rotatable therein about the longitudinal axis (45) thereof but which can be fixed in relation to it, and which cylinder (6) carries the retaining element designed as sleeve 15 (7) and provided for receiving and guiding the targeting instrument (44) or the like.
4. The device as claimed in one of claims 1 through 20 3, characterized in that the retaining element designed as sleeve (7) has a bore both for use of a drill and also for insertion of pins, screws or the like.
5. The device as claimed in claim 3 or 4, characterized in that the cylinder (6) has one or 25 more bores or polygonal openings formed in it for receiving the retaining element designed as sleeve (7).
6. The device as claimed in claim 3, characterized in that the cylinder (6) is equipped with an angle-measuring appliance. 30
7. The device as claimed in one of claims 3 through 35 6, characterized in that the cylinder (6) is made of metal.
8. The device as claimed in one of claims 3 through 7, characterized in that the cylinder (6) is made of radioparent material.

9. The device as claimed in one of claims 1 through 8, characterized in that the support (2, 2') and/or the navigation unit (30), for controlling the angle settings, have openings and/or markings for adaptation to a laser beam which is emitted from the computer tomograph and which is oriented toward the body of the patient.
10. 10. The device as claimed in one of claims 1 through 9, characterized in that the support (2, 2') is arranged on, and can be fixed in relation to, a base plate (1) which is able to be fixed on the computer tomograph table and which has laterally arranged base rails (12).
11. The device as claimed in claim 10, characterized in that the base plate (1) is made of a material that allows X-rays to pass through.
12. The device as claimed in claim 10 or 11, characterized in that belts (8) which can be stretched transversely across the patient's body are fixed on the side edges of the base plate (1).
13. The device as claimed in one of claims 10 through 12, characterized in that the base plate (1) can be secured on the computer tomograph table by belts (8).
14. The device as claimed in claim 1, characterized in that the support (2, 2') is designed as an arc-shaped support rail and can be rotated together with the navigation unit (30) the section plane fixed by the computer tomograph and can be fixed in this position relative to the base plate (1).
15. A method for operating the device as claimed in claim 1, characterized by the following steps:

- a) preparing test sections (b) through the target region with the computer tomograph,
- 5 b) determining a work plane (c) on the basis of section images of the test sections,
- c) adjusting the gantry to the level of the work plane,
- 10 d) storing the position of the computer table at which the latter is adjusted to the level of the work plane,
- e) carrying out the intervention, with navigation being carried out on the basis of updated CT images.